Poisonous substances in Ayurveda

Learning outcomes

define poisonous substances

list out the poisonous substances mentioned in Ayurveda

examine the poisonous substances and their uses

describe purification methods of poisonous substances

What is a poisonous substance?

‘Any substance which causes illness or death to living organisms when introduced or absorbed is called *Visha*/poisons

‘Poison’

In Ayurveda it comes under ‘*Agada tantra*’

It is equivalent to toxicology in modern science

Other names /Synonyms of *Visha*

Gara

Gada

Garala

Kalakoota

Kshveda

Different Types of *Visha*

Sthavara visha

Jangama Visha

Samyogaja Visha/ artificail poisons

Dushi visha-

- A part of *sthavara* (inanimate), *jangama* (animate) or *kritrim* (artificial) poison, which accumulates and cannot be excreted from the body completely due to its chronic and cumulative nature or becomes less potent after digestion or counteraction of antidotes & stays in the body for a prolonged period and vitiating the body slowly is called *Dushi Visha*

Modern classifications of *Visha*

Based on the use and the way of exposure;

- Drugs
- Food additives
- Environmental pollutants (Animal, Plant)
- Natural toxins

Modern classifications of *Visha*

Based on the target organ

- Liver toxins
- Nephro toxins

Modern classifications of Visha

Based on the effects of chemicals

Corrosive –destroys the materials in contact via chemical reaction

Irritant – induces a state of irritation

Mutagenic - a physical or chemical agent that permanently changes genetic material, usually DNA, in an organism

Carcinogenic - any substance, agent, or organism that has the potential to cause cancer.

Teratogenic - A teratogen is **any agent that causes** an **abnormality following fetal exposure during pregnancy**.

Sthavara Visha

Considered poisonous plants

Poisonous substance/substances found in a part or the whole plant

Visha Adhishtana/ plant parts that presents poisons

kanda (Yam)

Sara (Heartwood)

Nirviyasa (gum/resin)

Pushpa (Flowers)

Moola (Roots)

Phala (Fruit)

Pathra (leaves)

Beeja (Seeds)

Tvachaya(Bark)

Ksheera(latex)

there can be more than one *Visha adhishthana* in a plant

Characteristics features of poisonous substances used in therapeutics

Poisonous part should not be old

It should not be over-dry

Prativisha should not be stored along with poison

Should harvest in summer

Should be unctuous

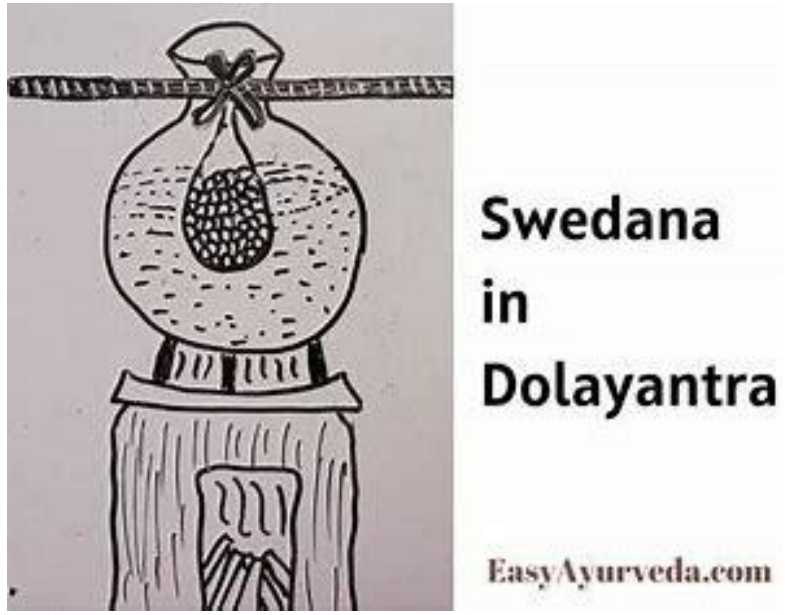
common purification methods of *visha*

1st method

The *Visha* substance is coarse powdered, taken in a vessel , and added with *Gomuthra* till the *Visha* is completely immersed. Everyday , old *Gomuthra* is replaced with fresh *Gomuthra*. This is done for 03 days . It is taken out, washed with hot water, dried under sunlight, and preserved

2nd method

Giving *Dolapaka sweda* for 15 hours using cows' milk



Necessity of the purification process

After *Shodhana* process *Visha* gets rid of all the toxic qualities. Therefore, *Visha* should be used after the purification process

Properties received after *shodhana* process

- ✓Special potency
- ✓Increased potency
- ✓Rejuvenation effect
- ✓*Tridoshaghna*
- ✓Provide strength to the body

Common dose for poisonous substances

Upto 125mg

This can be different according to the nature of the poison

In Ayurveda, Poisonous plants are divided into 02 ;

Visha

Upavisha

The plant considered under “Visha” and “upavisha”

‘*Visha*” type of poison causes death after ingestion.

“*Upa visha*’ types of poisons are less toxic and do not cause death. However, it causes other poisonous reactions

Vachchanavi is considered as *Visha* in the Ayurveda medical system.

Visha - Vachchanavi

Botanical Name – *Aconitum ferox*

Family – Ranunculaceae

Synonyms – *Ugra , Visha, Marana, Mahaushadha*

This plant cannot find in Sri lanka. Plant grows in high altitude lands like Himalaya region, Nepal

Morphology

Chemical compound

Aconite is the responsible compound for giving poisonous reactions

Other chemical compounds include;

- Pseudo-aconitine.
- Bikhaconitine.
- Chasmaconitine.
- Indaconitine.
- Catecholamine.
- Isoquinolines

Dose of Vachchanavi

Children (above the age of 5 years)- 0.2 mg/Kg of body weight

Adults 15 mg

Maximum Possible Dosage 30 mg per day

Toxic effects

Depress heart

Causes a burning sensation

Restlessness

Vertigo

Headache

Vachchanavi poisoning..

1st stage	Skin rashes; Tingling
2nd stage	Tremors
3rd stage	Burning sensation in the stomach and in whole body and vomiting
4th stage	Deformity
5th stage	Frothing; loss of sensation in the skin.
6th stage	Shoulders drooping and body wasting; bradycardia and dilation of pupils; breathing difficulty.
7th stage	Coma or unconsciousness
8th stage	Death (due to respiratory or heart failure)

Purification process

The usage part is the rhizome

Cut into small pieces

Immersed in the *Gomuthra* for 72 hours or

Dolapaka sweda for 6 hours with cows' milk.

Useful threpautic conditions

Fever

Asthma

Vatarakta

Diseases of spleen

Diseases related to phlegm

Externally can be applied for snake bites, scorpion bites etc.

Antidote

Borax alone or combined with ghee

Turmeric powder with ghee

Vomiting induced by milk

Arjuna Bark Powder along with cow’s ghee or honey should also be given.

Upavisha according to Rasa Tarangani

1. ***Langali***
2. ***Vishatinduka***
3. ***Karaveera***
4. ***Vijaya/Kansa***
5. ***Bhallataka***

6. Dhatura Seeds

7. Gunja

8. Rechaka/Jayapala

9. Ahipena

10.Arka Ksheera

11.Snuhi Ksheera

Langali

Botanical Name – ***Gloriosa superba***

Family – Liliaceae

English Name – Glory lilly

Sanskrit synonyms – Garbhapatiini, Halini, Kaliharika, Swarnapushpaka

Toxic effects

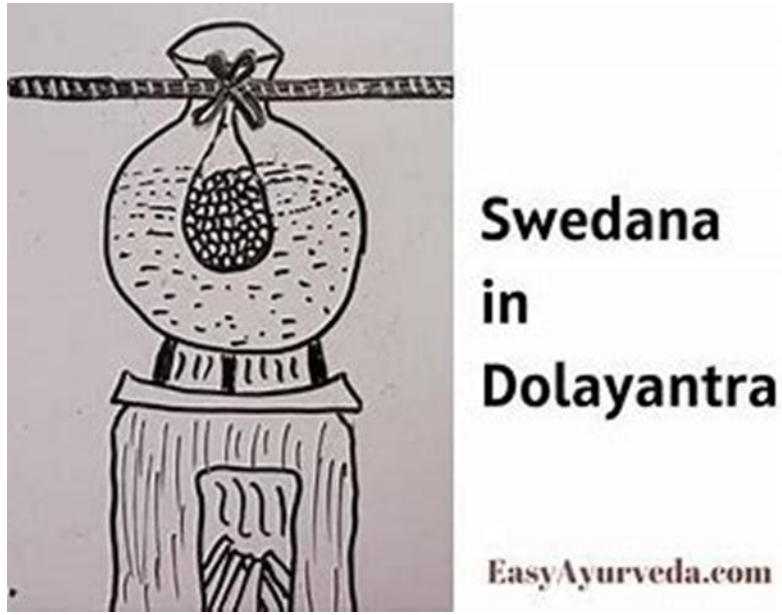
Burning sensation

Diarrhea

Delusion of the mind (Vibhrama)

Shodhana Process

Swedana (Dola paka) with gomuthra for 24 hours



Uses of Langali

Langali is contraindicated for internal application

Used only in External applications

Langali root boiled water used to clean wounds

Used in abortions

Chemical compounds: Superbine, Gloriojin

Antidote is Cowsmilk and ghee

Vishatinduka

Botanical name – *Strychnos nuxvomica*

Family – Loganiaceae

English name – Poison nut

Sanskrit Synonyms – *Kakatinudka, Kakapiluka, Kupilu*

Toxic effects

Delirium

Termors

Dilatation of the pupils

Tachycardia

Antidote – Juice of stalk of beetle leaves along with cows' ghee

Uses

Pulp Of The Ripe Fruit Used In Paralysis

Leaves Used In Chronic Wounds

Used In Blood Disorders

Piles

Fever

Formulations

Laxmivilasa Rasa

Vishatinudka Vati

Agnitundi Rasa

Shodhana process

Soaked in *Kanji* for 3 days

Ghritha Barjana and remove the outer covering of the seeds; wash again

Swedana with cows milk for 06 hours

Contraindicated in Paraplegia with muscle wasting,

Anupana – Milk , ghee, butter

Strychnine, Brucine

Dose – ¼ to 1 rattika (30mg – 125 mg)

Karaveera

Botanical name – *Nerium indicum/ Nerium oleander*

Family – Apocynaceae

English name – Oleander

Synonyms – *Hayamara, Ashvamara, Hayari*

Types of *Karaveera*

While flowered

Yellow flowered

Red flowered variety

Indications

Wounds (Especially Syphilis Wounds),

Ringworm Infections

Eye Diseases

Nerve Disorders

Facial Paralysis

Digestive Problem

Chemical constituents

Neriodorin

Nerizorin

Carabine

Scopoline

Oliandrin

Used parts and shodhana process

Roots used in therapeutics. However, toxic compounds found in seeds.

Shodhana process

Boiled 03 hours with cows milk

Toxic effects

Cardiac Depression

Feeble Pulse

Cardiac Arrest

Respiratory Arrest

Identify??

Bhallataka

Botanical name – *Semicarpus anacardium*

Family – Anarcardiaceae

Synonyms – *Anala. Arushkara,*

English name – Marking nut

Indications

Piles

Tumors

Jwara

Fever

Cold AND ASTHMA

Toxic effects

Contact with skin causes burning sensation and blisters

When used unpurified fruits, they cause hematuria and dysuria

Antidote is *iramusu* and coriander *hima kashaya*

Shodhana process

Gharshana With *Brick powder*

Dolayanthra Swedana with Coconut Water

Dose is 125mg to 375 mg

Chemical constituents

Phenolic Compounds

Bhilwanols

Bhilvaflavonoids

Usage part and formulation

Fruit is the usage part

Bhallataka Taila,

Sanjeewani Vati

Bhallataka Guda,

Bhallataka Rasayana

Identify??

Vijaya (Bhanga)

Botanical name – *Cannabis sativa*

Family – Cannabiaceae family

English name – Indian hemp

Synonyms – *Matulani, Tandrakrini, Bhanga*

Shodhana process

Tie leaves in a cotton cloth and Boiled with cows' milk for 3-6 hours and fried with Go ghrita

Swedana with Baboola Kwatha for half an hour

Different forms

Marijuana, Hashish,

Charas, Ganja

Bhanga

indications

Male Infertility

Diarrhoea

Relieve Pain

Insomnia

Identify??

Abin

Botanical name – Papaver Somniferum

Synonyms – Khakhasa, Khasathila, Tila Bheda

English name- Poppy

Family - Paperveraceae

Opium – *Paperver somniferum*

Pharmacological properties

Rasa – Thiktha, Kashaya

Guna- Laghu, Thikshna

Vipaka – Katu

Veerya – Ushna

Prabhava - Madaka

Chemical constituents – Morphine 9.5%, Paperverine, Narcotine

Usage parts

Latex Is Called Ahiphena (Abin/Opium)

Seeds - *Posthadana*

Postha–dried Fruit Without Latex

Indications

Vedanahara

Nidrajanaka

Madaka

Kaphaghna

Kasaghna

Grahi

Raktasthambhaka

However, in small doses it shows uttejaka, and Vajikarana effect

Papaver somniferum

DOSE

¼ *Raktika* (around 30mg)

CHEMICAL COMPOUNDS

Morphin

Codeine

Narcotine

Meconic acid

Papaverin

Identify??

Gunja

Botanical name – *Abrus precatorius*

Family – Fabaceae

English name –Rosary pea

Synonyms – *Raktha, Raktika, Tamrika, Sitapaki*

Usage part and purification process

Usage part is seeds

Dolayanthra *swedana* in cowsmilk for 06 hours

Dose and Indications

Dose Is – ½ To 1 Raktika

Wounds, For Rejuvenation And Increase Strength, Aphrodisiac,

Alopoecia

Toxic effects and antidote

Vomiting

Dysuria

Cardiac Arrest

Tremors

Antidote Is Cowpea Boiled Water With Sugar

Formulations

Gunjadi taila

Gunja garbha rasa

Nlibringadi taila

Chemical constituents

✓ **Chemical constituents**

Seeds – Abrine, Abrin A, B, C, I, II, III, Abrus agglutinin, Saponin, Flavonoids, Abrectorin, Precatorin, Lectin, campestanol etc

Leaf - Glycyrrhizin, Abrol, Abrasine, Precasine, Precol,Abraline, Abricin, Gallic acid, Triterpanoids, Saponins, Glycyrrhizinandolenanolic acid etc

Root - Glycyrrhizin,Abrine, Abruslactone, Abrusoside A, B C, D, Inositol ,Asabrusoside

Identify??

Jayapala

Botanical name – *Croton tiglium*

English name – Purging croton

Family – Euphorbiacea

Synonyms –*Rechani, Danti Beeja, Dravanti Beeja, Shodhani, Mala Dravi*

Croton tiglium

Usage part and indications

Usage part is fruit

It is used in constipation, ascites, worm infestation and wounds

Purification method

Dolayanthra Swedana with cowmilk for 6 hours

Chemical constituents

Tiglinic acid

Crotonic acid

Causes abdominal colics,

Antidotes – Cowsmilk, cows ghee, takra, lime jiuce

Dose and formulations

60 mg – 120mg

Ichchabhedi Rasa, Jalodharadi Rasa

Dhusthura seeds

Botanical name – *Datura metel*

Family – Solanaceae

English name – Thorn apple

Synonyms – *unmatta, kantaka phala, swarna namayuktha*

Datura metel

Shodhana process

Dolayanthra swedana with cowsmilk for 3 hours

Usage part is seeds

- ✓ **Chemical constituents:** Tropane alkaloids, Scopolamine, Hyoscyamine, Hyosine, Daturadiol, β-sitosterol, Daturanalone

indications

Skin Disorders, Eye Disorders, Asthma, Fever, Alopecia, Mastitis, Dandruff

Toxic effects include dryness of mouth, laryngeal edema, pupil dilatation, Dryness of skin, Narcosis, death

Antidote Is Cowsmilk With Sugar, Vacha Churna

Dose and formulations

30 mg – 60 mg

Kanakasundara Rasa, Kanakasavaya,

Sr.No	*Visha/Upavisha* (Plant poisons)	Latin Name	Part of Plant to be purified	*Shodhana dravya*(Media) used for purification
1.	*Vatsanabh*	*Aconitum ferox* Wall.	*Kanda*(Rhizome)	i)Cow urine ii)Cow milk iii)Goat milk
2.	*Vishatinduka/ Kuchala*	*Strychnous nux-vomica*	*Beej*(Seed)	i)*Kanji*(Sour gruel) ii)Ghee iii)Cow milk
3.	*Ahiphena*	*Papaver somniferum* Linn.	*Niryas*(Resin)	*Aadrak Swaras* (Ginger juice)
4.	*Jayapal*	*Croton tiglium* Linn.	Tongue less *Beej*(Seed)	i)Cow milk ii)*Tankan*(Borax), Cow milk iii)Cow milk, Mud pot/ Blotting paper
5.	*Dhatura*	*Datura metel* Linn.	*Beej*(Seeds)	i)Cow milk ii)Cow urine
6.	*Bhanga*	*Cannabis sativa* Linn.	Patra(Leaves)	i)Cow ghee ii)*Babbul twak Kwath*(*Acacia arabica* bark decoction)
7.	*Gunja*	*Abrus precatorious* Linn.	*Beej*(Seed)	i)Cow milk ii)*Kanji*(Sour gruel)
8.	*Bhallataka*	*Semecarpus anacardium* Linn.	*Phala*(Fruit)	i)Brick powder ii)Coconut water
9.	*Karveer*	*Nerium odorum* Soland.	*Mula*(Root)	Not mentioned
10.	*Langali*	*Gloriosa superba* Linn.	*Kanda*(Rhizome)	Not mentioned
11.	*Arka*	*Calotropis procera/Calotropis gigantum*	*Kshir*(Latex)	Not mentioned
12	*Snuhi*	*Euphorbia nerifolia*	*Kshir*(Latex)	*Chincha patra swaras*(*Tamarindus indica* leaves)juice

ARKA KSHEERA

- ✓ **Botanical name** : Calotropis procera
- ✓ **Family** : Apocynaceae
- ✓ **English name** : Sodom apple
- ✓ **Synonyms** : Ravi ksheera, Surya ksheera, Arka dugda, Surya dugda,

SNUHI KSHEERA

✓ **Botanical name** : Euphorbia nerifolia

✓ **Family** : Euphorbiaceae

✓ **English name** : Common milk hage

✓ **Synonyms**

Snuhi ksheera ,Sudha ksheera Sehunda ksheeraka ,Snuhi dugda ,Sudha dugda , Snug dugda , Vajradruma , Vajrakantaka

✓ **Sodhana**

Visoshana of mixture of 2 pala snuhi ksheera with 2 tola cincha patra swarasa in sunlight